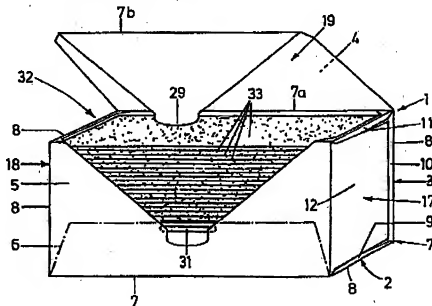


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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: FOLDING CARTON FOR SANITARY ARTICLES



## (57) Abstract

A folding carton (1) is produced from a cardboard cut (K) with four side walls (2-5). Two of the sidewalls (2, 5) are joined by glue-on flap (6). Two of the sidewalls (4, 5) include a tear up flap (19) defined by tear lines (23-25), a hinge (7a), and a cutout (30). The tear up flap (19) may be latched once opened by a latch (29) and a latching slot (31) formed in glue-on flap (6).

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## FOLDING CARTON FOR SANITARY ARTICLES

The invention relates to a folding carton, in particular for storing sanitary articles, comprising the features of the preamble of claim 1.

A corresponding folding carton is known from prior public use by the applicant. In this case, a carton cut having cohering side walls is joined by an adhesive flap, forming a box. The frontal edges of the side walls are provided with folding flaps which overlap each other to form the front ends of the folding carton.

A comparatively narrow tear-up flap is defined by parallel tear-up lines in a side wall of the folding carton, the flap and the box cohering by way of a folding edge. For a reclosing mechanism to be put into practice, a latch of the tear-off flap extends as far as into the vicinity of the uppermost folding flap of one of the front ends. A latching slot is punched into the folding flap lying underneath, into which to slip the latch once the tear-up flap has been opened, the carton thus being easily closed.

A drawback of the prior art design resides in the fact that a comparatively small dispenser opening is formed, which - in spite of the tear-up flap reaching as far as into the front end - is only available in the - as a rule - upward side wall. The overlapping folding flaps are located in the vicinity of the front end of the folding carton, there being no possibility of enlarging the dispenser opening in this area.

Another drawback in the known folding carton consists in that for the corresponding front end to form, at least the two uppermost folding flaps must cover virtually the entire frontal surface in order that the latching slot can be punched at a place where it is in alignment with the latch of the tear-up flap. This means comparatively high consumption of board for the production of the cut.

A folding carton having a bottom and a top cover joined by one of four side walls is known from DE 295 19 097 U1. Flaps are articulated to the free edges of the bottom and the top cover, forming the three other side walls which are very low. Two tear-up lines in the form of double die-cuts are provided on the top cover, extending on the top cover from the rear flap to the front flap. The latter is provided with an auxiliary tear-up opening from which two further tear-up lines extend as far as to the ends of the top cover tear-up lines.

Also in the case of this folding carton, the actual dispenser opening only extends over one side wall once the tear-up flap has been opened. Moreover, the known folding carton has no reclosing mechanism.

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It is the object of the invention to embody a folding carton having a tear-up flap by means of which to obtain an enlarged, reclosable dispenser opening while saving material.

This object is attained by the features specified in the characterizing part of claim 1. Accordingly, the tear-up flap extends over two neighboring side walls, the folding edge of the tear-up flap being disposed at the edge of the first side wall that is opposite to the second side wall. The latch of the tear-up flap is disposed at the edge of the tear-up flap that is opposite to folding edge, the latching slot being provided on the glue-on flap that is to join the two outer side walls of the cardboard cut.

The wide dispenser opening is produced by the tear-up flap reaching over two neighboring side walls and, by contrast to the prior art, it makes the contents accessible from two sides. This means access from above as well as from the side, this ensuring horizontal stacking of the products, in particular when sanitary towels are stored. As opposed to this, the prior art only teaches towels stacked upright in the box. In this regard, attention is drawn to the fact that with the folding carton according to the invention, horizontal as well as vertical stacking of flat products such as sanitary towels can be obtained in an identical direction of filling on a packing line. In the case of a rectangular cross-sectional shape of the stack of products and in accordance with a rectangular cross-sectional shape of the box, only the corresponding cross dimensions of the cohering side walls have to be interchanged when the direction of stacking changes. Details of this can be taken from the exemplary embodiment.

Since the glue-on flap, available anyway, comprises the latching slot for the latch, no additional piece on the cardboard cut is needed for the latching slot, which means material saving. Possibly, the glue-on flap must be expanded.

Further preferred embodiments, features, details and advantages of the invention will become apparent from the sub-claims and the ensuing description of an exemplary embodiment of the invention, taken in conjunction with the attached drawing, in which

Figs. 1 and 2 are perspective illustrations of an upright size folding carton in a closed and opened condition,

Fig. 3 is a plan view of the cardboard cut for the production of the folding carton according to Fig. 1, and

Fig. 4 is a perspective illustration of a flat, broadside folding carton in an opened condition.

The upright size folding carton 1 produced from the cardboard cut K has four cohering rectangular side walls 2, 3, 4, 5. "Upright size" means that the height of the

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vertical side walls 3, 5 exceeds the width of the horizontal side walls 2, 4.  $b > a$  applies in reference to Fig. 3. In the finished condition, the two side walls 2, 5 at the extreme ends of the cardboard cut are joined to form a box by means of a glue-on flap 6, this glue-on flap 6 and the side wall 2 cohering. While the four side walls 2, 3, 4, 5 cohere at their folding edges 7, 7a, 7b, the frontal edges 8, which run crosswise thereto, are provided with cohering folding flaps 9, 10, 11, 12 and 13, 14, 15, 16 for the two front ends 17, 18 of the folding carton to be formed. As seen in Figs. 1 and 2, the folding flaps 9 to 12 and 13 to 16, respectively, overlap and are customarily fixed by gluing (not shown). As roughly outlined by dashed lines in Fig. 3, the free corners of the two opposed folding flaps 10 and 14, respectively, can be provided each with a rectangular recess 34, as a result of which the external folding flaps 10, 12 and 14, 16, respectively, can also be glued to the innermost folding flaps 9, 11 and 13, 15, respectively. This prevents the sanitary articles kept in the carton from being soiled by dust and dirt particles penetrating vertically.

A tear-up flap designated in its entirety by 19 is defined by a non-continuous tear-up line 20 and extends over the two neighboring side walls 4, 5 that form the top cover and the front wall of the folding carton 1. The tear-up flap 19 remains joined to the folding carton 1 by means of the folding edge 7a virtually working as a hinge between the two side walls 3, 4. In this regard, the tear-up flap 19 extends from such edge (folding edge 7a) of the cover side wall 6 as is opposite to the front side wall 5 as far as into the proximity of the bottom of the front side wall 5. In the vicinity of the upper side wall 4, two opposed legs of the tear-up line 20 are embodied as so-called "double die-cuts" 21, 22, which - except for their bent ends - run along the frontal edges 8 of the side wall 4. The double die-cuts 21, 22 consists of a die-cut 23 externally scribed into the cardboard and an offset, opposite die-cut 24 applied internally and preventing the tear-up line 20 from being opened inadvertently in this area.

In the vicinity of the adjacent side wall 5, the double die-cuts 21, 22 continue in a perforation 25 comprising two symmetric legs 26, 27 which are slightly elbowed outward. The two legs 26, 27 enclose a triangular portion, a latch 29 being formed at the vertex 28 of the triangle by an approximately sickle-shaped hole 30 punched out of the cardboard cut K.

As seen in particular in Fig. 3, a latching slot 31 is punched into the glue-on flap 6 centrally in the longitudinal direction and parallel to the folding edges 7, 7a, 7b; it will take its place shortly above the portion defined by the punched-out hole 30 when the folding carton 1 is put together (see Figs. 1 and 2). In this way, the latch 29 on the tear-up flap 19 and the latching slot 31 form a reclosing mechanism for the folding carton, which is to be explained as follows:

Proceeding from the closed condition seen in Fig. 1, the latch 29 is seized, which is facilitated by the punched-out hole 30. By the latch 29 being pulled up, the perforation 25 and the double die-cuts 21, 22 are torn open successively, the tear-up flap 19 thus being folded up and the dispenser opening 32 forming which extends over

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the two side walls 4, 5. As a result, the sanitary articles placed in the folding carton 1, such as sanitary towels 33, can be reached. Due to the large dispenser opening and the possibility of access to the sanitary towels 33 from above as well as from the side, these can be placed into the folding carton, stacked one upon the other in the horizontal direction, as outlined in Fig. 2.

As further seen in Fig. 2, once the tear-up flap 19 is opened, the latching slot 31 lies open in the vicinity of the vertex 28 and for reclosing, the tear-up flap 19 can be folded down into its closing position and the latch 29 can be slipped into the latching slot 31.

Since - as seen in Figs. 1 and 3 - the tear-up flap 19 and the latch 29 extend as far as into the lower edge portion of the side wall 5, where the latch 29 and the glue-on flap 6 overlap, no or only very little additional material is needed. This configuration and the elbowed course of the two legs 26, 27 of the perforation 25 help produce a large dispenser opening 32 in the folding carton 1, offering good possibilities of access. This is of advantage in particular when the last articles are taken out of the box.

Of course, it is also possible to place the sanitary towels vertically as seen in the flat, broadside folding carton 1' of Fig. 4. In this case, the cross dimensions a and b, respectively, of the side walls 2, 4 and 3, 5, respectively, must be interchanged when an identical number of sanitary towels is placed vertically instead of horizontally in the folding carton. "Flat, broadside size" means  $a > b$ . In this way, both ways of stacking can be handled on one and the same packing line in an identical direction of filling.

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**WHAT IS CLAIMED IS:**

1. Folding carton, in particular for storing sanitary articles, comprising
  - four cohering side walls (2, 3, 4, 5) of a cardboard cut (K), of which the side walls (2, 5) at the extreme ends are joined by a glue-on flap (6) in the folded condition,
  - folding flaps (9 to 16) on the frontal edges (8) of the side walls (2 to 5), which overlap, forming the two front ends (17, 18) of the folding carton, and
  - a tear-up flap (19), which is defined by tear-up lines (20) in a side wall (4, 5), and which remains joined to the folding carton (1) by way of a folding edge (7a), and a latch (29) of which is insertable in a latching slot (31) on the folding carton (1) for reclosing the dispenser opening (32) formed by the tear-up flap (19).

characterized in that

- the tear-up flap (19) extends over two neighboring side walls (4, 5), the folding edge (7a) being disposed at the edge of the first side wall (4) that is opposite to second side wall and the latching slot (31) for the insertion of the latch (29) which is disposed on the edge (28) of the tear-up flap (19) opposite to the folding edge (7a) being provided on the glue-on flap (6).
2. Folding carton according to claim 1, characterized in that the tear-up flap (19) substantially covers the entire first side wall 4 and that its portion located within the second side wall (5) is approximately triangular, the latch (29) being disposed at the vertex (28) of the triangle.
  3. Folding carton according to claim 1 or 2, characterized in that the tear-up flap (19) and its latch (29) extend as far as into the edge portion of the second side wall (5) where the latch and the glue-on flap (6) overlap.
  4. Folding carton according to one of claims 1 to 3, characterized in that the tear-up line (20) is designed as a double die-cut (21, 22) within the first side wall (4).
  5. Folding carton according to one of claims 1 to 4, characterized in that the tear-up line (20) is designed as a perforation (25) within the second side wall (5).

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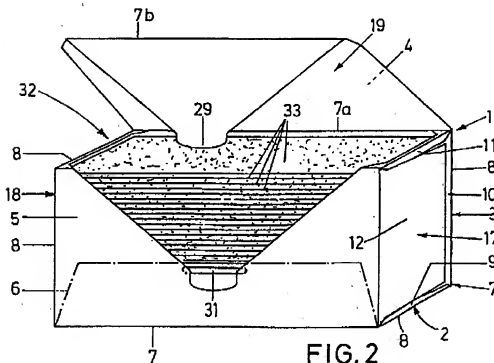
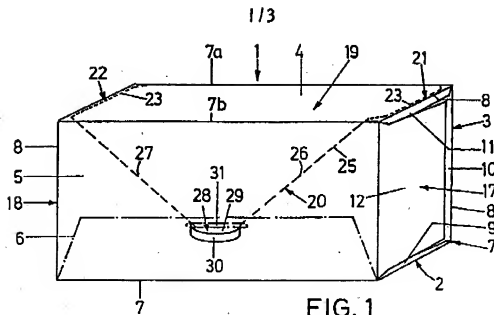
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6. Folding carton according to claim 5, characterized in that the perforation (25) comprises two legs (26, 27) which are elbowed outwards.
7. Folding carton according to one of claims 1 to 6, characterized in that a hole (30) is recessed in the second side wall (5) in front of the latch (29) of the tear-up flap (19).
8. Folding carton according to one of claims 1 to 6, characterized in that at least one (10, 14) of the folding flaps (9 to 16), which will be located between the innermost and the external folding flaps in the finished condition of the folding carton, is provided with recesses (34) in the vicinity of its free corners, by way of which all the folding flaps (9 to 12 and 13 to 16, respectively) can be glued together.



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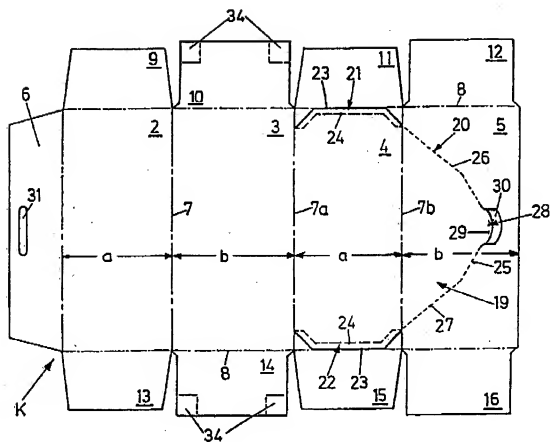
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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US97/19777

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>		
IPC(6) : B65D 5/34 US CL : 229/207, 232; 206/494 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) U.S. : 229/207, 229, 232; 206/494		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,746,019 A (PRATER) 24 May 1988, col. 7, lines 3-40 and figs. 16 and 17.	1-3
X	US 2,973,086 A (THOMPSON) 28 February 1961, col. 3, lines 9-53.	1-3
X	DE 1,009,558 A (ALLGEIER) 29 May 1957, figs. 1-4.	1-3
A	US 5,078,273 A (KUCHENBECKER) 07 January 1992.	1-3
A	EP 135,600 A (RUPPERT ET AL) 03 April 1985.	1-3
A	GB 1,348,500 A (MAY) 20 March 1974.	1-3
A	US 3,357,631 A (AID ET AL) 12 December 1967.	1-3
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* "A"	Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance	* "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"O"	document referring to an oral disclosure, use, exhibition or other means	* "A"
"P"	document published prior to the international filing date but later than the priority date claimed	document member of the same patent family
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Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230		Authorized officer GARY E. ELKINS Telephone No. (703) 308-1148 <i>Shella Vence</i> <b>Patent Specialist</b> <b>Group 3200</b>

Form PCT/ISA/210 (second sheet) (July 1992)\*

## INTERNATIONAL SEARCH REPORT

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PCT/US97/19777

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2,473,492 A (SHINA) 14 June 1949.	1-3

Form PCT/ISA/210 (continuation of second sheet)(July 1992)\*

## INTERNATIONAL SEARCH REPORT

International application No.  
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## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☒ Claims Nos.: 4-8  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

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2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet(1))(July 1992)\*